patient is given tape to practice the treatment position and immobilization at home. The children enjoy the "hands on" experience and the opportunity to show others what they have learned. Our center has successfully treated 4 children (ages 2.6 years – 4.6 years) over the past 2 years without GA. This has allowed the children to eat ad lib, minimized their time in clinic, and improved their overall quality of life. In addition, it is estimated that $55,000 per patient is saved by treating without GA. There is scant information in the medical literature about this approach. We plan to continue to study it's feasibility over the next 2 years.

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TIME IS MONEY!: COST ANALYSIS OF NURSING SALARY EXPENDITURE AND TIME SAVINGS BY UTILIZING THE BIOPATCH DRESSING FOR CENTRAL VENOUS CATHETERS ON AN INPATIENT BONE MARROW TRANSPLANT UNIT

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Background: The use of a BIOPATCH Dressing for central venous catheters (CVC) has proven to reduce catheter-related bloodstream infections (CRBI) and extended patient stays in the Bone Marrow Transplant Unit (BMTU), University of Wisconsin Hospital. The use of the BIOPATCH Dressing has decreased the number of CVC dressing changes performed each week by BMTU nurses at St. Francis Hospital. Nurses gained additional time to perform more nursing tasks such as patient education and psychosocial support for patients. Existing literature offered no information about the savings in nursing time and salary expenditure by utilizing a BIOPATCH Dressing for CVC. This study examined monetary savings for nursing time and salary expenditure by using the BIOPATCH Dressing.

Method: A data collection tool was designed to track the date of each CVC dressing change utilizing the BIOPATCH Dressing from 3/2007 to 2/2008. Other data collected included the reason for the dressing change and a CVC exit site skin assessment. A mean time of 10 minutes required to change a CVC dressing was calculated using observational data from the skill performance of 10 BMTU nurses. Information provided by unit management disclosed that the mean hourly rate for nursing salary was $30.00.

Results: Analysis of patient data (N = 71; 1494 hospital days) revealed the number of required CVC dressing changes under the old BMTU Policy (M,W,F) would total 640. By using a BIOPATCH Dressing, the number of dressing changes under the amended Policy (1 day/week) totaled 225 representing a reduction of 65% or 415 dressing changes. Nursing salary expenditure for 640 CVC dressing changes would total $3,200.00. Nursing salary expenditure for 225 dressing changes totaled $1,065.00 representing a 66% reduction and savings of $2,135.00. Nursing time required to complete 640 dressing changes was 106.5 hours. Nursing time required to complete 225 dressing changes totaled 35.5 hours representing a 66% reduction and savings of 71 hours.

Conclusion: Study data validated changes in unit policy regarding CVC dressing changes. By eliminating 2 dressing changes a week, nurses gain additional time to address patient needs which has increased job satisfaction. The decrease in nursing salary expenditure was shown to be significant. More research is needed to determine if money saved can result in hiring of more nurses or changes in nurse:patient ratios.

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NURSING CARE OF THE BONE MARROW TRANSPLANT PATIENT WITH HEMORRHAGIC CYSTITIS

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Hemorrhagic cystitis is a complication that can occur after an allogeneic stem cell transplant. Painful bladder spasms, urinary bleeding, clots and frequency are symptoms that patients often present with during episodes of hemorrhagic cystitis. Savon (2007) states that hemorrhagic cystitis is caused by BK virus, a human polyomavirus acquired in childhood, which remains latent in the genitourinary tract throughout life. Arthur (1986) noted an association between activation of BK virus and hemorrhagic cystitis in allogeneic stem cell recipients. In an effort to reduce viral load, weekly infusions of cidofovir are often used until the BK copies are detected less often, prednisone dose is reduced and immunosuppressant therapy is being tapered. Recently in an attempt at symptom relief, weekly intravesicular (bladder) cidofovir infusions have been used with some success. The bladder infusions of cidofovir are specifically for relief of the discomfort related to the hemorrhagic cystitis and do not treat the BK virus. Patients' most frequent complaint associated with hemorrhagic cystitis is pain. The cidofovir bladder infusion is designed to coat the inside of the bladder with a dilute solution of cidofovir. This is achieved by instilling the solution and clamping the bladder for 45 minutes to one hour. Encouraging the patient to void prior to the instillation did reduce some discomfort. Each patient's pain tolerance is different and determining the appropriate amount of pain medication to alleviate the discomfort of instilling a foley catheter, medication, clamping, and tolerating the time of the treatment were all significant challenges. Clearly addressing the challenges of the procedure and enlisting the patient's assistance in selecting the amount and timing of the pain medication gave the patient some degree of control in a difficult situation. The bladder infusions are routinely preformed on a weekly outpatient basis. Patients continue until they have an abatement of symptoms; which has not shown to be related to the number of BK copies in the urine or serum BK virus. The purpose of this poster is to describe the unique aspects of nursing care for the BMT patient receiving intravesicular cidofovir for the management of BK virus associated cystitis.

PHARMACY ORAL

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IMPACT OF A PHARMACIST IN THE OUTPATIENT ALLOGENEIC STEM CELL TRANSPLANT CLINIC

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Background: Although it has demonstrated benefit in cancer patients, pharmacist involvement in direct patient care of allogeneic stem cell transplant (SCT) patients has not been described. The 2009 National Patient Safety Goals from the Joint Commission emphasize the importance of accurate and complete medication lists (including drug, dose, route, and frequency) across the continuum of care to reduce adverse drug events. We hypothesize that including a pharmacist in the care of patients undergoing allogeneic SCT will improve medication list accuracy and improve pharmaceutical care.

Methods: Allogeneic SCT patients commenced scheduled pharmacist appointments at Mayo Clinic on 5/5/08 prior to their physician visit to complete medication reconciliation and provide pharmaceutical care. Allogeneic SCT patients were included if they had a pharmacist appointment in the SCT clinic between 5/5/08 and 10/1/08. Patients were excluded if they refused consent for use of their medical records for research or had not been evaluated by a Mayo Clinic physician for more than 1 year. Retrospective data was collected to analyze trends in medication list accuracy. Mean medication list omissions were compared by Wilcoxon rank-sum tests and McNemar's test was used to compare error-free medication lists. Pharmaceutical care recommendations and outcomes (drug interaction management, dose adjustment in organ dysfunction, formulation changes to improve adherence or efficacy, etc.) were recorded.

Results: A pharmacist met with 90 patients between 5/5/08 and 10/1/08 prior to each physician visit, totaling 410 patient visits during 105 clinic days. Three patients were excluded; consent refused (n = 2) and no physician visit at Mayo Clinic during past year (n = 1). Patients had a range of 3 to 49 medications (median

17). 72% of patients had at least 1 medication omitted from their list at their first pharmacist visit. 367 pharmaceutical care recommendations were made on 76 patients, with 72% of recommendations accepted. The most frequent recommendations included osteoporosis prevention/management (n = 51), calcineurin inhibitor dose adjustment (n = 43), pneumocystis prophylaxis (n = 26), electrolyte replacement (n = 25), and antiviral prophylaxis/treatment (n = 20). 220 medications were identified as requiring a new written prescription.

Conclusion: Pharmacist involvement in the allogeneic stem cell transplant clinic has improved medication list accuracy and pharmaceutical care of patients.

Improvement in Medication List Accuracy

Medication List	Visit 1 N=73	Visit 2 N=73	p value	Visit 2 N=53	Visit 3 N=53	p value
Medication Omissions (Mean)	11.1%	5%	<0.0001	4.8%	2.6%	0.04
Prescription Medication Omissions (Mean)	5.7%	2.8%	0.001	2.8%	1.4%	0.101
Dose Omission/ Errors (Mean)	8.6%	4.1%	<0.0001	4.5%	1.9%	0.006
Schedule Omission/ Errors (Mean)	4.3%	1.1%	<0.0001	1.1%	1.1%	0.988
Route Omission/ Errors (Mean)	15.4%	3.1%	<0.0001	3.9%	1.8%	0.08
Patients with Error-Free Medication List	2.7%	31.5%	<0.0001	28.3%	43.4%	0.08

*Visit 2 percentages are slightly different as there are fewer patients with at least 3 visits.

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MEDACTIONPLAN.COM AS A TOOL FOR PATIENT EDUCATION AND MEDICATION MANAGEMENT IN THE BLOOD AND MARROW TRANSPLANT SETTING

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Baylor University Medical Center performs approximately 200 Blood and Marrow transplants annually in the inpatient and outpatient settings. The medication regimens prescribed for these patients at discharge are complex, confusing, and often prove overwhelming to patients during the transplant process. In our program, pharmacy staff works in conjunction with the physicians to provide medication education and teaching to transplant patients. We began using MedActionPlan.com, a free web-based tool that allows for the creation of personalized treatment plans for patients and saves their records in a program specific database. Each plan includes images of the medications prescribed, instructions of use, abbreviated drug information for each medication as well as a medication schedule checklist for patient use. This checklist may be used to record adherence, upcoming appointments or other relevant medical information. Plans may be customized to fit individual patient needs and have the option to be translated into Spanish. All medication plans are accessible from any computer by a user specific log-on and password. MedActionPlan.com is secure, and meets all HIPPA requirements and Joint Commission's goals for improving patient safety and education for medication therapy. The web-based program also contains an export function, allowing schedules to be sent directly to patients for their medication managment. These schedules can be customized into regular-print, large-font or wallet-sized versions depending on patient-specific needs. In addition to enhancing communication between the inpatient and outpatient facilities, MedActionPlan.com has empowered our patients and their caregivers to be proactive participants in their healthcare program. Patients are able to quickly refer to a centralized and comprehensive medication profile which allows for significantly improved understanding of, and ultimately, compliance with complex medication regimens. MedActionPlan.com has proved to be a valuable resource and has both enhanced the quality of patient education in our transplant program and improved the continuity of care between inpatient and outpatient settings.

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DEVELOPMENT AND COMPARISON OF LIMITED SAMPLING STRATEGIES FOR PHARMACOKINETICALLY-GUIDED HIGH-DOSE, INTRAVENOUS BUSULFAN

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High-dose, intravenous (IV) busulfan (Bu) is widely used in stem cell transplantation conditioning regimens, and is favored for its pharmacokinetic (PK) predictability and complete dose assurance. A one-compartment, first-order elimination PK model adequately describes the behavior of Bu following IV administration, allowing for prospective targeting of a specific systemic exposure (AUC) to preparative regimens for each individual patient. Traditional 'full' sampling commonly utilizes 9 to11 samples over 10–16 hours, following a 2–3 hr drug infusion , to calculate Bu plasma clearance (Cl_T). We hypothesized that 4–5 samples drawn at selected times during the elimination phase would be sufficiently accurate to calculate Cl_T. Here we present a limited sampling strategy (LSS) as basis for the validation of a Bayesian method that optimizes such sample schema. Decreasing the number of timepoints would reduce the analytical, logistical efforts while cost containing. We analyzed Bu PK in 87 patients to develop a LSS method. From 42 patients, we collected and analyzed the full sampling data from the 3rd of 4 daily doses and compared the AUC obtained , to that obtained when using a 5-point LSS. For a 5-point LSS (5 min before EOI, 4, 6, 10, and 12 hour), the mean daily AUC calculation was 0.2% lower (5132 vs. 5142 mM-min) with like coefficient of variation (CV, 18.8% each), compared to the full method. In a follow-up study, using an additional 11 consecutive patients, we investigated whether a 4-point LSS (deleting the 5 min prior to the EOI timepoint) was significantly different in determination of AUC; the 4-point LSS yielded average AUC that was 3.2% > the 5 point method (985 vs. 954 mM-min) with variability that was slightly > the 5-point method (CV, 9.6% vs. 13.6%). To determine whether a 4- or 5-point LSS would be preferable, data on the 1st dose in an additional 45 patients from an alternative arm of this study were analyzed. The AUC based on full sampling was then compared with the AUC from both 5- and 4-point LSS, resulting in AUC differences of 0.3% and 0.6% (6129 vs. 6108 and 6090 mM-min) with nearly identical variability. The calculated AUC and other PK parameters from the 4- and 5-point LSS did not vary significantly from full method, but greater variability was observed with the 4-point method. We conclude that prospective validation of a LSS is warranted and ongoing; demonstrating that 5-sample LSS is favored for clinical therapeutic dose guidance.

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FAMCICLOVIR PROPHYLAXIS OF VARICELLA ZOSTER VIRUS REACTIVATION IN CHILDREN AFTER HEMATOPOEITIC STEM CELL TRANSPLANTATION

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Background: The usual varicella zoster virus (VZV) reactivation prophylaxis used in adults after hematopoietic stem cell transplantation (HSCT) is oral acyclovir. In our institution, famciclovir was chosen over acyclovir because of fewer daily doses